ATTACHMENT - REMARKS

By this Amendment After Allowance, the examiner's requirement in the Notice of Allowability for a drawing to facilitate the understanding of this invention is now provided.

Initially it is noted that the examiner suggested that the figures provided next to the PCT published Abstract might be added to this application to comply with this requirement. However, it is believed that those figures have nothing to do with the present invention, and were probably inadvertently printed with the PCT Abstract by mistake. Therefore, those figures are not used or usable.

It will also be noted that the present application on the last page of the specification noted that "An example of a conventional mechanical oscillator system in a time keeping device is illustrated and described on pages 194 to 195 of "How Things Work", volume 1 published 1972 by Paladin, UK, which is incorporated herein by reference". A copy of these pages is attached hereto.

It will therefore be appreciated that the present addition of a drawing to facilitate the understanding of the present invention makes use of these pages, and in particular of a more schematic depiction of the balance wheel and balance spring as depicted in figure 3 of "How Things Work". Such a depiction as presently shown in new figures 1-3B as well as the added descriptions of the specification are well supported by the noted pages of "How Things Work", as well as by the general knowledge of those of ordinary skill in this art and by the original filed specification. Therefore, it is submitted that the addition of figures 1-3B, and of the associated descriptions thereof now added to the specification in accordance with US patent practice, are not new matter.

Entry of figures 1-3B and the additions to the specification associated therewith is therefore proper and solicited to comply with the examiner's requirement.

Respectfully submitted,

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Signed By
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CLOCKS AND WATCHES

Any periodically repeated phenomenon can be utilised for time measurement, so long as the duration of the period remains accurately constant. In early timepieces the periodic movement was performed by a pendulum (Fig. 1). The weight which drives the watch is applied to the circumference of the spindle, causing it to rotate. This rotation is, however, arrested by the anchor, which is linked to the pendulum and which periodically engages with, and releases, a toothed wheel called the escape wheel (the combination of escape wheel and anchor is called the escapement). Each time the pendulum reaches its maximum amplitude, one of the projections (called pallets) of the anchor releases a tooth of the escape wheel, allowing this wheel to rotate a corresponding amount. Its rotation is therefore performed in a series of jerks, controlled by the anchor and pendulum, and this rotation is transmitted to the hands of the clock through a train of gear wheels. Friction would soon cause the pendulum to stop swinging if it were not given an impulse at regular intervals to keep it in motion, just as a child's swing has to be pushed each time it reaches it's full amplitude (Fig. 2). In the pendulum clock an impulse is imparted to the pendulum by the escape wheel (which is driven by the weight) through the pallets. The frequency (number of swings per second) of the pendulum can be varied by sliding the bob of the pendulum up or down on its rod. Lowering the bob makes the pendulum swing more slowly, and vice versa. In this way the period (time of oscillation) of the pendulum can be adjusted and, the clock itself thus be regulated. In watches the controlling action of the pendulum is performed by a device called the balance (Fig. 3). Attached to the spindle of the balance is a spiral spring, named the balance spring or hairspring, which controls the oscillations of the balance. Attached to the balance is a pin which engages with the lever. With each oscillation of the lever the pallets release the escape wheel, allowing it to rotate a distance corresponding to one tooth. At the same time an impulse from the escape wheel (which is driven by the mainspring) is transmitted to the balance through the lever and pin and thereby keeps the balance in motion. The function of the latter is thus entirely analogous to that of the pendulum in a pendulum clock. The type of escapement illustrated in Fig. 3 is the so-called lever escapement; it was invented about two hundred years ago, and is now widely employed; there are several other types of escapement for watches. The balance performs five to-and-fro movements per second, i.e., the second hand moves in five tiny jerks each second. The escape wheel drives the minute hand and hour hand through a train of gear wheels.

The transmission of the movement of the minute wheel and hour wheel to the hands of the watch is shown in Fig. 4. The minute wheel performs one complete revolution per hour, and so does the minute hand, which is mounted on the same spindle. During the same length of time the hour wheel and hour hand perform only one-twelfth of a revolution.

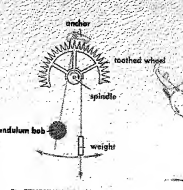

Fig. 1 PENDULUM DRIVE

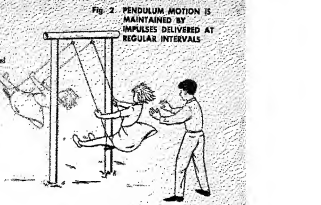

Fig. 2 PENDULUM MOTION IS MAINTAINED BY IMPULSES DELIVERED AT REGULAR INTERVALS

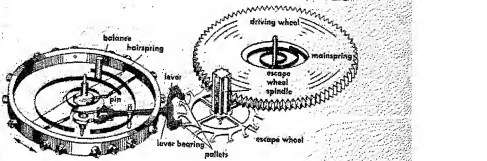

Fig. 3 DRIVE MECHANISM OF A WATCH

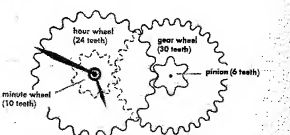

Fig. 4 TRANSMISSION OF MOTION FROM THE MINUTE AND HOUR WHEELS TO THE HANDS